

lower crossvein; the third externomedial areolet is unusually long, its basis being on the same line with the bases of the discal and of the fourth externomedial areolets; the third externomedial vein, instead of issuing from the discal areolet, runs parallel to it and becomes a mere prolongation of the præbrachial vein. Other peculiarities of the neururation are, that the *cubital vein forks* and not the radial one (at least such is the case in both of my specimens), that the stigmatal crossvein is close at the tip of the subcostal vein, and that there is a stump of a vein near the origin of the petiole. The ♂ genital organs seem to be analogous to those of *Pedicia*. The spurs at the tip of the tibiæ of this species are very small, almost imperceptible.

A. HYPERBOREA.—*Fusca*, alis fusco maculatis, *area pobrachiali media venula transversali instructa*; long. 0.45.

Very like the preceding, but easily distinguished by the coloring of the wings, by the presence of a supplementary crossvein about the middle of the pobrachial area, and by the oblique direction of the second lower discal crossvein (similar in this respect to all the other species of *Amalopsis*).

The only specimen which I possess is spoiled by mould, so that my description will necessarily be incomplete.

Body brownish, antennæ brown, feet brownish, base of femora paler, tip of tarsi dark brown. Wings with a slight brownish yellow tinge, and with brown spots at the tips of nearly all the veins, as well as at their anastomoses. There are seven such spots along the anterior margin (one at the humeral crossvein, another a little beyond it, a third at the mediastinal crossvein, a large spot at the origin of the petiole, extending to the anterior margin, the following three at the tips of the mediastinal-subcostal and radial veins); similar, but smaller spots at the tips of the veins of the posterior margin (beginning with the first externomedial); other spots at the base of the pobrachial area, in the middle of the subaxillary area (at the posterior margin), at the basis of the petiolate areolet, of the area formed by the fork of the cubital vein, and a square cloud in the middle of that area; crossveins also clouded.

The petiolate areolet is present; the stigmatal crossvein is near the tip of the subcostal vein, and there is a stump of a vein near the origin of the petiole.

Labrador; single ♂ specimen.

Contributions to the Ophiology of Lower California, Mexico and Central America.

BY E. D. COPE.

VIPERIDÆ.

Caudisona durissa Laur. Cope, Smithsonian Contributions, v. xii. Researches on the venom of the Rattlesnake, by S. W. Mitchell, M. D., p. 120.

A male specimen of this serpent (No. 4945) has been sent by Capt. J. M. Dow, from La Union, San Salvador, to the Smithsonian Institution (No. 4945). It is identical with specimens from Surinam in Mus. Academy, exhibiting similar muzzle plates, head and neck stripes, and the isolated black dorsal rhombs upon a yellow ground, with yellow centres. The crepitacula of this species and the *C. terrifica* are much shorter and more compressed than in *C. atrox* and *C. horrida*.

Caudisona atrox sonoraensis Kenn. Proc. Acad. Nat. Sci. Phila. 1861, p.

Specimens sent from Cape St. Lucas, Lower California, to the Smithsonian Inst. and Phila. Academy, by Mr. John Xantus, are more delicately tinted than Sonora specimens. The dorsal rhombs are more perfect, their yellow borders brighter, and their centres paler and similar in color to the lateral interspaces. The scales but little roughened.

[Sept.

Caudisona enyo Cope.

Head depressed, covered with small keeled scales. Superciliaries large, prominent, preceded by a small marginal plate; muzzle covered above with nearly equal polygonal scales, slightly or not keeled. Rostral plate low, in form a nearly equilateral triangle: nasals two, the anterior in contact with the rostral: numerous small scales anterior to the fovea lachrymalis. Thirteen or fourteen superior labials, the posterior small; fourteen and fifteen inferior, the second, third and fourth in contact with the genaeal. Two rows of smooth scales, and the infra orbital circle, separate the labials from the orbit; the scales of the former continue smooth upon the temporal region, and are larger than the labials. Scales of the body rounded, short upon the sides, especially those of the first three rows which, near the middle of the body, are not at all, or scarcely, keeled. Total number of rows 23, the median very strongly keeled, none rugose striate as in *atrox*. Crepitaculum moderate, its segments diminishing in breadth towards its extremity. Gastrosteges 166. Urosteges 23 single, 3 pair double. Total length (including crepitaculum) 29 in. 9 lin. Tail 4 in. 3 lin.

General color above, light greyish brown, shaded with yellow; vertex rufous, marked with a pair of small brown spots. A light band, bordered with dark crosses each superciliary plate; from the inner border of the same plate commences a chestnut brown band, which diverges from its fellow on the posterior part of the head, where it is either interrupted or continuous with a broader one which nearly joins that of the opposite side on the neck: here they are either interrupted, or continuing, unite on the neck, and form the first spot. A brown band extends from the eye to the canthus oris, involving the last labial plate, and is continued beyond, forming a spot on each side the throat. A series of about thirty-three spots ornaments the middle line of the back; posteriorly they are of a wood brown color; the others chestnut brown bordered with black. Anteriorly the spots are longer than broad, emarginate anteriorly and posteriorly; opposite to each is a black spot upon scales of the first, second, and third rows. The dorsal spots become broader, resembling transverse rhombs, with light borders outside the black; the lateral angles become confluent with the lateral black spots, forming vertical black bands on the sides. They finally assume the form of transverse brown bands. The tail is crossed by five of these, upon a brown ground. Beneath yellow; tips of many of the gastrosteges blackish. Inhabits Lower California, whence specimens have been sent to the Philada. Academy and Smithsonian Institute, by Mr. John Xantus. Type 4663. Xant. Coll.

This species bears considerable resemblance to *C. mollisus* in its style of coloration, and like it, is a beautiful animal. The latter species is scutellated upon the muzzle, as in *C. durissa*: the rows of scales are more numerous than in the *enyo*, and it is without the head stripes.

Caudisona mitchellii, Cope.

Head depressed, covered with small irregular scales, posteriorly keeled, anteriorly, and upon the obtuse muzzle, rugged, free at the lateral or hinder edges. Superciliaries prominent, striate rugose. One loreal; nostril large, prenasal small, higher than long, separated from the rostral and superior labials by small scales. Rostral low, an equilateral triangle. Sixteen superior labials, the last large, three rows between them and the orbit; temporals, large, smooth. Superior labials sixteen. Scales elongate, striate rugose, in 25 rows, all strongly keeled except the first. Crepitaculum well developed of the *C. atrox* type, i. e. strongly compressed, having the terminal complete segments as broad as the basal. Gastrosteges 198; urosteges 26. Total length (excl. crepitaculum) 44 in., tail 3 in. 6 l.

The color above and below is greyish yellow. The upper surface of the head is shaded, that of the body coarsely and densely punctulated with brown.

1861.]

The regular aggregation and deepness of these punctulations, form a series of about forty-two dorsal spots. These are transverse, with produced lateral angles, extending across twelve rows of scales from angle to angle, separated from the adjacent ones by a bright band of ground color one and a half scales wide. On the posterior fourth of the total length, they form brown cross bands: five upon the tail are black on a very light ground as in *C. atrox*. Anteriorly there is an ill-defined series of spots which are opposite those of the dorsal line. A yellow band extends from the nasal plates anterior to the eye, involving from the ninth to the last superior labial. Superior to this is a brown band extending from the eye and ceasing on a line with the angle of the mouth. Some indistinct brown marks on the top of the head are arranged as follows: one on the inner border of each superciliary; three posterior to these, the median short and broad; four further posterior, the median pair longer, diverging, reaching the neck. Cape St. Lucas, Lower California; one specimen (5291½ Sm. No.) in Mus. Smithsonian from Mr. John Xantus.

This curious rattlesnake is related to *C. tigris*, *C. cerastes*, and *C. lucifer*. In common with the first two and *C. enyo*, *lepidus* and *molossus*, it exhibits a low rostral plate. The plates of the superior parts of the muzzle resemble only those of (among the above mentioned species) *cerastes* and *enyo*, being small, irregular and rough, without even the marginal series seen in *lucifer*, *atrox*, *horrida*, etc. In shade of coloration it is not unlike *tigris*, being well adapted for concealment upon the sandy soil of the Californian deserts: the distribution and form of the spots are like those of *lucifer*. The separation of the prenasal from the rostral plate is peculiar to the species. It is named in honor of Dr. S. W. Mitchell, the author of the interesting "Researches upon the Venom of the Rattlesnake."

In the catalogue of rattlesnakes in the Smithsonian contributions, previously cited, thirteen species of the genus *Caudisona* were referred to, as distinguishably described. Two have been since added to this list, making, with those of the present memoir, the whole number seventeen. Of these, three inhabit South America, six Mexico, two Lower California, and eleven the United States. Two of the eleven are found east of the Mississippi River; one west of the Rocky Mountains; the intermediate region is inhabited by ten species,—*lucifer* entering from the west, and *horrida* from the east. Of these, the most northern, and widely diffused is *Lecontei*; it extends from southern Nebraska to Utah; in the great basin of the latter country a curious variety of it is found. *C. atrox* alone inhabits the greater part of Texas; in the extreme west of that State, and probably in Chihuahua, *C. lepidus* occurs. The greatest intensity of species is in south western New Mexico and Apacheria (or Arizona), where are found *tigris*, *cerastes*, *scutulatus*, *atrox sonoraensis*, *molossus*, and perhaps *lucifer*.

Structurally, the South American species and *molossus* form a group characterized by the six regular plates of the muzzle, and the small rattle. The single nasal and smooth head plates isolate the *lepidus*. The superciliary hornlike processes, and the rostral plate, broader than high, separate the *cerastes*. The remaining species form the largest group, where there are two nasals, one or more pairs of marginal plates between the superciliary and rostral, separated on the median line by smoother or rougher, small irregular scales; no superciliary processes. *C. mitchellii* must be distinguished from these by its absence of marginal plates, and presence of scales on the lateral borders of the rostral. All the species have Professor Reinhardt's scale pores in pairs; they are very difficult to observe in some of the species—as *cerastes* and *mitchellii*. In *durissa*, a single pore is frequently met with.

Bothriechis mexicana Cope. *Atropos Mexicanus*, Dum. Bibr. vii. p. 1521. Specimens in Mus. Smithsonian and Academy from Dr. C. Sartorius from

[Sept.

Mirador, Vera Cruz. As suggested in these Proceedings for 1859, p. 339, this species does not belong to the *Atropos* of Wagler.

There is a superciliary plate, much encroached upon by the scales of the vertex. The description in the *Erpetologie Generale* is applicable to our specimens, but the coloration of the plate is slightly incorrect. The dark brown dorsal rhombs are occasionally isolated.

Bothriechis brachystoma Cope. *Teleuraspis Castelnau* et var. *brachystoma* Cope, Pr. A. N. S. 1859, p. 339. Ibid. 1860, p. 72.

This species is not *Bothrops Castelnau* of the *Erpetologie Generale*, as we had been led to believe, through the insufficiency of the brief description in that work. An examination of Prof. Jan's synopsis in *Rev. et Mag. de Zool.* 1859, p. 155, shows it to be similar to the *B. numifer*, but as I have failed to find any description of the latter, I have retained the name given as above.

Scales of the vertex, front, and temporal regions, keeled. Canthus rostralis prominent, acute, bordered by three scales on each side. Muzzle recurved, rostral plate high. Superior labials normally ten, rarely nine or eight. Second separated by a plate from postnasal, and with the third by granulations from the fossette. Fourth and fifth largest, separated by one row of scales from subocular granulations. Twelve to fourteen inferior labials. Dorsal scales in twenty-five rows, all keeled but the first. Tail short, quite slender, terminated by a small corneous appendage, which is compressed, grooved upon each side, each moiety inflated, the inferior most produced. Total length 13 in. 9 lin., tail 1 in. 5 l.

Ground color above, gray or fulvous brown, lightest medially. On each side of the median line a series of from sixteen to twenty-one parallelogrammic brown spots, which are opposite or alternate with those of the opposite side, and frequently divide into double triangles anteriorly. Two spots on the third, fourth and fifth rows opposite each dorsal spot. Gastrosteges and throat clouded and punctulated with brown. Head above and jaws dark brown; a light band back of the eye. In the type of var. *brachystoma*, the superior labials are abnormally nine, the upper and lower labials and genual region brownish black; on the inferior labials three light spots, the two anterior continuous from the eye, the posterior prolonged on the neck, forming a light band. A specimen in the Mus. Smithsonian from La Union, Guatemala, from Capt. Jno. M. Dow, is similar to the last, except in having ten labials, four scales bordering the canthus rostralis on each side, twenty-eight pairs of spots, and gastrosteges broadly bordered with brown. Sm. No. 4950.

Bothrops atrox Wagler.

Specimens in Mus. Smithsonian from Greytown, Central America, Dr. Caldwell, donor, and from Mirador, Vera Cruz, from Dr. C. Sartorius. The latter is the most northern locality yet recorded for this widely distributed species. The specimen is half grown, of a mouse color, with about twenty-one pairs of brown triangular spots, sometimes alternate, sometimes confluent on the median line. Sides of the head and throat yellow. Scale-pores not discoverable.

NAJIDE.

Elaps elegans Jan.

A beautiful specimen of this species from Mirador, Dr. Sartorius' Coll., in Mus. Smithsonian, exactly as figured and described by Prof. Jan. Some naturalists appear recently to have become convinced of the specific identity of the forms of *Elaps* from *corallinus* to *fulvus*. We are of opinion that a similar relation will be found to exist between *corallinus* and *lem-*
1861.]

niscatus, through isozonus, et. al., and that a belief in the identity of the lemniscatus with the fulvus will be equally "inevitable." In the case of the forms of the genus *Thamnophis*, a similar conclusion has been reached, though not consistently carried out, on account of a misapprehension relative to the structure of the preanal plate of the *T. sauritus*. The admission of the identity of *T. sirtalis* with *T. haydeni*, renders the acceptance of *faireyi* and *sauritus* as distinct from the former, impossible.

Similar methods of reasoning would necessitate the union of many of the species of *Simotes*, *Tropidonotus*, *Lampropeltis*, *Caudisona*, and no doubt at some future day of those comprised in the sections of "protean" genera generally. But if we are to be taught by nature, we will not assume a knowledge of her system which we do not possess; and laying down as our premises what are scarcely yet our conclusions, form associations which a fresh accession of information must compel us to alter. Let us simply record what we find to exist, and while the grand plan becomes more and more evident, will await patiently the period, perhaps not far distant, when we shall fully comprehend the details of our branch of the great Cosmos, and be able to present it in its completeness to the contemplation of man.

Elaps euryxanthus Kenn., Proc. Acad. Nat. Sci. Phil. 1860, 337.—Mr. Kennicott has not given us the locality whence the specimens described by him were obtained. We believe that one of them was from the region of the Gila. A specimen of the same serpent has been sent to the Mus. Compar. Zoology, Cambridge, from Guaymas, Sonora.

COLUBRIDÆ.

Himantodes leucomelas Cope.

Slender, but less elongated than *H. cenchoa*. Head very distinct, elliptic. Rostral plate triangular, subinferior. Vertical, with nearly parallel lateral borders, which are longer than the anterior. Length of occipitals, greater than their breadth, and than the vertical; marginal temporals six. Nasals small; loreal higher than long; two preoculars, superior not in contact with vertical; two postoculars, bounded posteriorly by two temporals. Eight superior labials; eye resting upon the fourth and fifth. Superior labials ten, sixth largest. Seventeen rows of scales, those of the median dorsal broader than long. Length of tail contained three and a half times in the total length. Ground color above and below white tinged with ashy. This is crossed above by twenty-nine black elliptic spots, which cover the tips of the gastrosteges on each side. About eighteen spots on the tail. Beneath, punctulated with black, forming posteriorly a median band. A pair of elongate black spots extend from the posterior half of the superciliary plates, across part of the vertical, and the whole length of the occipitals, to a short distance posterior to them. They are separated by a narrow band of ground color. There exists a black spot on the anterior part of the vertical, and a band of the same across the postfrontals.

From Mirador, Vera Cruz. Dr. C. Sartorius. Mus. Smithsonian.

Himantodes gemmistratus Cope. *Himantodes cenchoa* Cope, Proc. A. N. S. Phil., 1860, p. 264.

Similar in proportions to *H. cenchoa*. Head short, thick, temporal region swollen. Lateral borders of vertical plate slightly convergent, equal in length to the anterior. The special peculiarities which distinguish it from *cenchoa* are as follows. The scales of the median dorsal series are diamond-shaped, longer than broad, not transverse. But one temporal in contact with the postoculars. Sixth inferior labial largest, not the fifth. In coloration it is quite similar; the spots upon the body number about forty-two, but they are peculiar in being connected by a median dorsal vitta. The belly is punctulated laterally, and is without the median vitta of the *cenchoa*.

[Sept-

The brown of the upper surface of the head is pale, and is varied by a few irregular darker spots. Total length 30 in., tail 9 in. One specimen in Mns. Acad. Nat. Sci. from Capt. Jno. Dow. Habitat San Salvador, Centr. America.

This is a plainly colored species, resembling the *cenchoa* more than the *lencomelas*. In a specimen which we regard as belonging to the former from Trinidad, sent by Mr. A. H. Ruse to the Mns. Smithsonian, the spots are large, forty-three in number on the body, bordered with darker. The lateral borders of vertical plate are very convergent, almost continuous with the latero-posterior. The fifth inferior labial is largest. The coloration of the vertex, as represented imperfectly by Seba, consists of a chevron-shaped brown band between the orbits, the angle directed posteriorly; a light Y-shaped figure enclosed by brown bands on the occiput and nape; a shade of brown upon the vertical plate. The punctulations of the belly are most dense medially, forming a band.

In the three species of Himantodes, the postabdominal plate is divided, and the dentition dipsadine. In the two species here described, the scale pores are single; in *H. cenchoa* I cannot discover them.

Trimorphodon lyrophanes Cope. *Lycodon lyrophanes* Cope, Proc. Acad. Nat. Sci. 1860, p. 343.

Upon the species described as above, as congeneric with the *Siphlophis scolopax*,* we now establish the genus *Trimorphodon*, diagnosing it as follows: Body elongate, compressed; head distinct, depressed. Posterior superior maxillary tooth separate, grooved; median teeth small; anterior elongate, spaced. Anterior mandibular longer than posterior. Pupil vertical. Nasal plates two, loreals two, pre- and postoculars two or more. Scales of the median dorsal line small. Anal and subcaudal scutella divided. Scale pores double.

In *Siphlophis* the anal plate is entire, there is one preocular, and one loreal plate. The median dorsal series of scales is larger. In *Dipsadomorphus* the anterior teeth are not stated to be longer, the loreal and preocular plates are single, the median dorsal row of scales is larger. The anal is entire, and, if it be a valid character, the scale pores are single.

The genus is nearly allied to *Tripanurgus* and *Siphlophis*. The physiognomy of the species is repulsive. The present species has only as yet been certainly ascertained to inhabit Lower California; the identity of specimens from Arizona I regard as not ascertained. Mus. Acad. Nat. Sci. and Smithsonian.

Trimorphodon biscutatus Cope. *Dipsas biscutata*, D. & B. vii. 1153. *Dipsadomorphus biscutatus*, Gthr. Cat. Colubr. Brit. Mus. 176.

This species has the scales in twenty-five rows (23 D. & B.) the preceding, twenty-one. Here the preocular is in contact with the vertical; in the former not. This has the head bands in chevrons, the *lyrophanes*, lyre-shaped; the dorsal spots are also much more emarginate anteriorly, laterally, and posteriorly. The *biscutatus* is much the larger animal of the two. One specimen (5569) in the Mns. Smithsonian was obtained near Realejo, Nicaragua, by Capt. J. M. Dow.

Tropidonotus dimidiatus Boie, Isis von Oken, 1827, p. 535. Specimens of this forgotten species have been obtained near Jalapa by Mr. Pease, and sent to the Mus. Academy. It is related to the *T. Grahamii* Gthr., but wants the dorsal bands, and those margining the abdomen. The plumbeous of the superior regions extends to the first row of scales, (third in *Grahamii*),

* As Fitzinger's *Neue Classification* antedates Boie's memoir in the *Isis von Oken*, a strict application of the law of priority requires that the *Lycodon unicolor* of the former work (Boadon D. & B.) should retain its name, while the *scolopax* receive that of *Siphlophis*, Fitz. 1843.

the scales themselves obtuse, (subemarginate in *Grahamii*), in nineteen rows. There are nine superior labials, eye over the fourth and fifth, (six or seven in *Grahamii*, eye over third and fourth), one or two preocular, and two or three postocular plates. The head is shorter and broader than in *Grahamii*, hence the loreal is higher than long, instead of longer than high. The external nares have a more vertical aspect, but resemble those of *Grahamii* and of *Tropidonotus* sp. in being connected by suture with the labial border only. The prefrontal plates are frequently confluent as described by Boie. Inferior surface uniform yellow; no median caudal band. Size that of *T. leberis*.

Tropidonotus validus Cope, Pr. A. N. S. Phil. 1860, p. 342. *Regina valida* Kenn. l. c. 1860, p. 334. *Tropidonotus tephroleura* Cope, l. c. 1860, p. 341. The Californian and Durangoan specimens, assigned formerly to distinct species, differ in little more than in the less elongated head of the latter. A specimen from Utah in Mus. Smithsonian is quite intermediate in this respect, proving that they are not worthy of receiving distinct appellations in the system.

Tropidonotus celæno Cope, Pr. Ac. Nat. Sci. Phil. 1860, p. 341.

Inhabits Cape St. Lucas, Lower California. This species and the preceding, the only members of the genus inhabiting the Pacific region of North America, have the number of rows of scales similar to that characterizing the European and Asiatic species, while our Eastern and Southern species of the sipedon type, are different in this respect. They agree in the absence of scale pores with the American species of the type of *leberis*, and the *stolatus* and *quincunciatus* types of Asia. According to Mr. Xantus they are most common in swampy meadows among long grass.

Tretanorhinus nigrolentus Cope. Dorsal scales in twenty-one rows, all keeled. Head slightly distinct, narrow. Rostral plate broader than high, separated from the prefrontals by the nasals: each of the latter is subtransverse, the nostril between. Postfrontals as long as vertical; anterior border of the latter equal to the lateral: occipitals elongate, each bounded by seven temporals. Two loreals, anterior smaller; two preoculars, the superior smaller, not in contact with the vertical; two postoculars, in contact with the temporal. Eight superior labials, eye resting on the fourth; inferior labials ten, the sixth elongate, the tenth very small. Two pairs of postabdominal scutella. *Gastrostege* 136 (tail mutilated); length of body 15 in. 6 lin.

Color above black, tinged with plumbeous as far as the superior half of the second row of scales; below yellow, punctulated anteriorly, especially upon the inferior labials. Upon the anterior third of the body, the punctulations form a narrow band upon the extremities of the *gastrostege*, separated from the dorsal black by a narrow yellow band. A few irregular spots on the *urostege*.

One specimen (5568) presented to the Smithsonian Inst., by Dr. Caldwell, from Greytown, Nicaragua.

This species differs from the *T. variabilis* D. & B. in color, in the greater relative size of the postfrontals, and in the presence of carinae upon all the more elongate scales. In both the *Tretanorhini*, the scale-pores are absent. Cuba is the native country of the *T. variabilis*, whence it does not seem to have been often sent. Dr. Lobi has presented it to the Academy, and Prof. Poey to the Smithsonian Inst. It is an interesting species, as exhibiting the full development of the structure towards which we see a successive approach in *Tropidonotus rhombifer*,* *T. ustus*, *T. cyclo-*

* Since this species was first made known by Dr. Hallowell, it has been described as *Tropidonotus pogonias* and *Nerodia holbrookii*; it is also very possibly *T. cyclopion* of Günther. The mental tubercles do not constitute a specific peculiarity, but are most common on all old individuals: they occur on both species of *Tretanorhini*, *T. rhombifer* inhabits the Mississippi valley as far north as Southern Illinois, where Mr. Kennicott has obtained it.

pium* and *T. anoscopus*; † i. e. the approximation of the external nares—and consequent restriction of the prefrontal plates—and the narrowing of the superciliary plates, to give that vertical position of nostrils and range of vision so characteristic of the most highly aquatic types of serpents. The union of the prefrontal plates as in *Dimades plicatilis* is but one step further. Between the latter species and *Trop. rhombifer*, the *Tretanorhinus* may be said to be exactly intermediate in respect to position of nares and eye, carination and number of scales, and coloration. Besides this passage from the *Tropidonotinae* to the *Homalopsinae*, there is some analogy or affinity between such species as *Tropidonotus dimidiatus* and *grahamii* and *Hypsirhina enhydris* of the Old World. A similar connection may be traced through *Atretium schistosum*.

Thamnophis cyrtopsis Cope. *Eutaenia cyrtopsis* Kenn. Proc. A. N. S. Phil. 1860, p. 333.

Var. *cyclides* Cope.

A single specimen from Cape St. Lucas, Mr. Xantus' coll. (Smiths. No. 5023,) corresponds in most respects with Mr. Kennicott's description, but differs as follows: The first dorsal row of scales is smooth; there are no spots upon the extremities of the gastrosteges; the seventh upper labial shield is principally bordered with black on its posterior border; there are two rows of small alternating black spots posterior to the post-occipital pair, instead of a single row of large ones; on the anterior third of the body there are two rows of small alternating spots, the inferior in contact with the lateral stripe, covering one or two scales, the superior in contact with the vertebral, and soon disappearing. The inferior series is larger near the middle of the body, but is lost posteriorly. The skin is marked with the usual large spots, forming a zigzag series. The head is very broad posteriorly, the muzzle short, the frontal region very declive.

* This species has been sent from Florida by Mr. Würdemann to the Smithsonian Inst. Specimens obtained in Southern Illinois by Mr. Kennicott probably belong to the same.

† *Tropidonotus anoscopus* Cope. Scales small, in twenty-three rows, all keeled except those of the first, which are of small size. Scale pores in pairs. Dentition syncranterian. Head oval, muzzle short, obtuse, profile plane. Rostral plate twice as broad as high, its labial border much shorter than the nasal. Nasal plates but little separated anteriorly by the prefrontals, scarcely touching the postfrontals; nostrils subvertical. Loreal higher than long. Preocular narrow, not in contact with the vertical. Prefrontals very small, subtriangular; superciliaries narrow; vertical elongate with parallel lateral borders; occipitals rounded posteriorly, bounded by one large and six smaller temporals. Postoculars two, the inferior and half the superior in contact with one temporal, also a series of small scales which separate the orbit from the superior labial plates. The latter are nine in number, the seventh largest, fifth beneath the middle of orbit. Symphyseal very small, transverse, ten inferior labials; genials elongate. Gastrosteges 143, one divided anal, urosteges 73; total length 14 in., of tail 3 in. 6 lin. General color above, dark plumbeous brown, with blackish vertical bars, alternate upon each side, one, or one and a half scales wide, and three and a half or four scales apart. Beneath dirty brownish white, each scutum brown at the base. Head and jaws brown.

Habitat. Cuba. Mus. Acad. Nat. Sciences.

This is probably the *Tropidonotus cyclopiön* with 23 rows of scales of the *Erpetologie Generale*. Compared with Floridan specimens, noted above as the true *cyclopiön*, with 29 or 31 rows of scales, we observe the following peculiarities in the latter, which are not shared by the former. The rostral plate is as high as broad; the nasals largely in contact with the postfrontals; the loreal triangular, longer than high; the preocular divided; two large and one small temporal bounding each occipital; eight superior labials, twelve inferior. Seven superior labials are assigned to the *cyclopiön* in the *Erpetologie Gen.* In *T. rhombifer*, the aspect of the nares and orbits is less vertical, the rostral plate is as high as broad, and the dorsal scales and labials are different in numbers and proportions from those of the *anoscopus*.

† *Atretium Cope*, *Tropidophis* Gray, 1849, not Bibron, 1843.

Phimothyra grahamaiae Cope, Pr. A. N. S. Phil. 1860, p. 566.

This species has been sent to the Smithsonian Institute from Lower California, Mr. J. Xantus' coll.

Phimothyra bairdii Cope. *Salvadora Bairdii* Jan. Iconogr. des Rept. Ophid. 1 livr. pl. iii. fig. 2.

This species inhabits the region of Jalapa. A specimen in Mus. Acad. Nat. Sci. exhibits one loreal and two preoculars on each side.

Conophis vittatus Peters, Monatsberichte Preuss. Acad. 1860. p. 521.

The genus *Conophis* is allied to *Phimothyra*, *Coniophanes* and *Tomodon*. From the first it is barely separable, differing only in the grooved posterior upper maxillary; the rostral plate is quite similar to that of *P. bairdii*. As in that genus and *Coniophanes*, there are no scale pores. From the last two it differs in the prominent rostral and convex frontal region; *Tomodon* is further distinguished by its single nasal. *T. lineatus* D. & B. Erp. Gen. vii. 936, is apparently congeneric with the *C. vittatus*, differing specifically in its elongate prefrontals, and punctate gastrosteges. Guatemala is the native country of the *Conophis*. Mus. Smithsonian, Capt. John M. Dow's coll.

Spilotes pullatus Wagler.

The following observations are suggested by an examination of ten specimens belonging to the museums of Philadelphia and Washington.

Two distinct forms may be distinctly made out. In the one the scales are very large, in from 15 to 18 rows, strongly keeled except the first two. Superior labials in four specimens seven, in one eight; the last, two-thirds the height of the penultimate in three, equally high in two; the fifth very small, not reaching the postoculars in four, reaching them in one. The upper surface of the head usually black, the tail and posterior third of the body black and bandless, in all. Two specimens from Surinam (Mus. Acad.), one from Trinidad (Mus. Gill) and one from Venezuela (Mus. Smiths.) one loc. ign. The second possesses 18 or 19 rows of smaller, weakly keeled scales, those of the first four or five entirely smooth. Superior labials eight, the ultimate as high or higher than the penultimate, the fifth large, approaching or reaching the postocular. The superior surface of the head yellow, crossed by four more or less irregular black cross-bands; the posterior third of the body crossed by numerous narrow, chevron formed cross-bands of yellow; the tail annulated with the same. Three specimens in Mus. Smithsonian from Mirador, Dr. Sartorius' coll. one loc.? Mus. A. N. S.

The first is the "Veränderliche Natter" of Merrem's Beitrage, Heft. 2, pl. xii., and *Coluber plutonius* of Daudin. The *C. pullatus* of Linn., Mus. Ad. Fried., which is *Cerastes mexicanus* Laur. and *Col. variabilis* of Nieuwied, is represented by these authors and by Seba as annulated posteriorly and upon the tail, though apparently otherwise similar to the *plutonius*. The second or Mexican form we do not find figured or described. It may be called for the present by the sub-specific appellation of *aureibundus*.

Pityophis vertebralis Dum. & Bibr. not Günther. *Pityophis haematois* Cope, Pr. Acad. Nat. Sci. Phil. 1860, p. 342.

The serpent described in the Erp. Generale, and by me, as above, must be identified with the *Col. vertebralis* of Blainville, notwithstanding the imperfect figures and description of the latter author, and the adverse opinion of Günther. The specimens included under this head in the British Mus. Catal. obviously belong to a different species. *P. vertebralis* inhabits only Lower California, so far as known.

Arizona lineaticollis Cope.

Head distinct, elongate. Rostral plate rounded in profile, much elevated, the posterior angle right, not reaching postfrontals. The latter three times the

[Sept.

size of the prefrontals. Vertical longer than broad, the anterior border straight, as long as the occipitals. Five or six small temporals on each side. Nasal plates large; loreal longer than high. Preoculars one or two, postoculars three. Superior labials eight or nine, liable to irregular subdivision; fourth and fifth, or fourth, fifth and sixth entering the orbit. Twelve inferior labials; postgenials very small. Scales small, in twenty-seven rows, the median ten keeled. Tail very short.

General color of a specimen long preserved in spirits: above light brown, beneath paler. The head is without markings. On the anterior part of the body two black bands, two and two halves rows of scales apart, extend for four times the length of the head and terminate each in a narrow elliptic annulus. The latter are nearly confluent with the succeeding pair of annuli, which are very narrow. These increase in breadth posteriorly until near the middle of the body they become confluent on the median line, forming geminate open spots; near the tail they lose the geminate form. Their whole number is 36 pairs, separate or united. Alternating with these is a small series of annuli, which become elongate anteriorly, and finally become short black lines, parallel to, and three scales from, the median pair. A few spots on the extremities of the gastrosteges on the posterior part of the abdomen. Total length, 30 in.; Tail, 3.9 lin.

Habitat. Mexico. Mus. Acad. Nat. Sciences.

The American genus *Arizona* now embraces six species; viz. *A. elegans*, *jani*, *pleurostictus*, *reticulatus*, *deppei*, and *lineaticollis*. Three of these have been described by Dnm. et Bibr. as belonging to their genus *Elaphis*, i. e. *Natrix Laurenti* (*Coluber* Gthr.), but that genus is characterized by a differently formed rostral plate, and double anal.

Drymobius aurigulus Cope.

Of the group *Masticophis* B. & G. Scales in seventeen rows as in *testacens*, those of the median series very elongate. Crown and muzzle very plane, supercilium and canthus rostralis prominent; eye moderate, muzzle more elongate than in any other species of the genus. Rostral plate rounded, prominent, recurved above. Vertical elongate, posteriorly half as wide as each supercilium, not in contact with preocular. Occipitals elongate, posteriorly truncate. Nasals and loreals very long, the latter encroaching much on preocular. Three pre-, two postoculars. Superior labials eight, fourth and fifth entering orbit; the last equal in elevation and length to the penultimate. Inferior labials ten, fifth largest; postgenials longer than pregenials.

Color above brown—becoming nearly black anteriorly. Cephalic plates light brown shaded with yellow. A narrow yellow band passes round the muzzle from eye to eye. A spot on the temporal region, one on the postoculars, all the labials, the chin and anterior part of the abdomen bright golden; sides of the neck to the fifth row of scales ditto. On the second and third rows of scales of the latter region is a black band regularly interrupted at intervals of about seven scales. It finally becomes continuous, and with a band upon the first row almost excludes the ground color upon the posterior and middle parts of the body. Abdomen dirty yellowish.

Proportions probably similar to those of *D. taeniatus*; (specimen mutilated.)

Habitat. Cape St. Lucas, Lower California. Mr. Jus. Xantus' coll.

This curiously marked species most resembles the *D. ornatus* (*Masticophis ornatus* B. & G.) The number of rows of scales is greater; the scales themselves are narrower; the muzzle is more elongate—hence also the nasal and loreal plates; there is one more preocular, and the ultimate superior labial is larger. (Smiths. No. 5793.)

Lampropeltis boylii, var. *conjuncta* Cope.

It was observed in these Proceedings, 1860, p. 255, that Cape St. Lucas specimen 1861.]

mens had the scales in the white cross bands black bordered. In specimens from Fort Yuma, the black so prevails as reduce the bands to series of light dots. Thus this variety is allied to the *L. splendida* in accordance with the general resemblance of Lower California reptiles to those of Arizona and Chihuahua.

The genus *Lampropeltis*, defined by Baird and Girard, and distinguished by me from *Coronella Laur.*, at p. 254 of these Proc. for 1860, is separated from the latter genus by a peculiarity not formerly observed. The scale pores are always double; in *Coronella* they are single, as correctly indicated by Prof. Reinhardt's table, p. 222, Vidensk. Meddel. Naturhist. Kjobenh. 1860.

Lampropeltis polyzona Cope, l. c.
Mirador Vera Cruz, Dr. C. Sartorius.

Lampropeltis micropolis Cope, l. c.
A specimen in Mus. Smithsonian from Minatitlan Riv. Mexico, exhibits a few more pairs of rings than a Honduras specimen.

Hypsiglena ochrorhynchus Cope, l. c. 1860, 246.
Inhabits the southern part of Lower California. Bears some resemblance to the young of *Sibon annulatus*.

Hypsiglena torquata Cope. *Leptodeira torquata* Gthr., Ann. Mag. N. H. 1860 (March).

Inhabits Nicaragua and Laguna Id. A species nearly allied to the preceding, differing principally in having a transverse light collar upon the neck instead of three longitudinal blotches. A fourth species from the valley of the Rio Grande del Norte is known to me. The genus *Hypsiglena* can hardly be regarded as other than *Coronellina* in form, though so closely allied to *Sibon* among the *Dipsadinæ* as to be scarcely separable from it. Regarding *Sibon annulatus* from Surinam as the true representative of that genus, the present form may be distinguished by the single scale-pores, the ungrooved maxillary teeth, the absence of tendency to irregular subdivision of lateral head-plates, and perhaps by the presence of the two preoculars. The species all seem to be of small size.

Chersodromus liebmanni Reinhardt, Vidensk. Meddel. Naturhist. Kjobenhavn. 1860, p. 35, Taf. iv. figs. 10, 11.

This curious serpent, so nearly allied to the *Ninias*, particularly to *N. diademata*, has been sent from Mirador, Vera Cruz, in Dr. Sartorius' valuable collection. The union of the postfrontal plates occurs only in the following genera of serpents, so far as I am aware: *Temnorhynchus Sm.* and *Prosymna Gray*, in Africa. *Hydromorphus Pet.* Central America; *Chersodromus Rhdt.* Mexico, and a genus allied to *Elapomorphus*, from Paraguay.

Chilomeniscus stramineus Cope, Pr. A. N. S. Phil. 1860, p. 339.

Inhabits the southern part of Lower California. Specimens in Mus. Smithsonian and Academy, from Mr. J. Xantus.

This genus, with *Toluca*, *Stenorhina*, *Chionactis* and *Sonora*, and perhaps *Conopsis*, forms a little group, characterized by a very prominent transverse and slightly decurved rostral plate.

The form graduates into the ordinary *Calamarian* type. The first mentioned five genera may be thus distinguished:

I. Prefrontal and nasal plates confluent.*	
Dentition glyphodont; scales usually poreless,	<i>Stenorhina.</i>
Dentition isodont; scales uniporous,	<i>Chilomeniscus.</i>

* To this group belongs *Calamaria degenhardtii*, Berth. Abhandl. Goettingen, 1847, p. 8.

II. Prefrontal and nasal plates distinct; dentition isodont.

a. Loreal absent.

Scales uniporous; vertical produced anteriorly; one nasal, Toluca.

b. Loreal present.

One nasal, two postoculars; rostral much depressed, Chionactis.
Two nasals, three postoculars: rostral little depressed, Sonora.

Gyalopium and Amblymetopon form another group, characterized by a stout form, distinct head, and recurved rostral shield; size small.

Chilomeniscus cinctus Cope.

Rostral plate projecting far backward, entirely separating the prefrontals, encroaching upon the postfrontals; the latter are in contact with the labials. Nostril connected by suture with the fronto-nasal suture. One very small preocular, two postoculars. Seven superior labials, the first longitudinal, the remainder vertical except the last two, which are nearly equilateral. Symphyseal in contact with genials. Scales broad, very smooth, in thirteen rows. Tail very short. Gastrosteges 11, one divided anal; urosteges 21 pair. Total length seven inches, tail eight lines. Ground color white, with a reddish tinge, encircled by sixteen black rings upon the body, and three upon the tail. There are four or five scales in width, and separated by equal spaces; they are narrower on the belly. The head is black from the extremities of the occipital plates to the anterior part of the vertical, and to the second labial plate. Chin shaded with black.

Habitat.—Near Guaymas, east coast Gulf of California. Mus. Compar. Zoology Cambridge, No. 24.

The coloration is that of the species of *Chionactis*.

Stenorhina lactea Cope.

Similar in most respects to *S. ventralis*. Tail one-seventh of the total length. Scales in seventeen rows. Occipital shields longer than in *S. ventralis*, their common suture much longer than their supercilio-ocular. Vertical more elongate, with shorter latero-posterior borders. Frontals broader, (longitudinally); rostral plate more prominent. Postnasal in contact with preocular by a very short suture. Seven superior labials, broader than in *S. ventralis*. Six inferior labials, the first homologically equal the first and second. Preanal shield divided.

Total length 25 inches 5 lines; tail 3 inches 7 lines.

Color above brownish white; beneath paler. An indistinct band passes through the temple and eye to the muzzle.

Habitat.—Guatemala. Specimen 4944, from La Union, Capt. Jno. M. Dow's coll.

Stenorhina ventralis Dum., *Bibr.*, Cope, Pr. A. N. S. 1860, 242.

A common serpent near Mirador, Vera Cruz, as proven by Dr. Sartorius. In this species the scales are uniformly poreless; in *S. lactea* a single pore is rarely seen; in *kennicottiana* (l. c. 242) a regular pair of pores, one odd, or one median pore, are sometimes observable.

Boa eques Eyd. et Souly.

Capt. J. M. Dow has sent this species from Guatemala to the Academy; another specimen in the same collection is said to have come from Caraccas. Greytown, Nicaragua, is a locality whence it has been sent to the Smithsonian Institution.

The scales of the orbital ring do not always rest upon the superior labials. The species is, however, easily recognized by its stout form, approximate spots, short, elevated muzzle, and general dark color. The rostral plate is always more constricted at the base than in *B. constrictor*, the labials less numerous and more elevated.

Loxocemus bicolor Cope, Pr. Ac. Nat. Sci. Phila. 1861, p. 76.

This genus, discovered in Guatemala by Capt. Dow, seems to confirm by its structure the propriety of the arrangements of Müller and Duméril, in which the Peropoda or Aprotrodonta is regarded as an equivalent of the other subordinate divisions of the Colubridæ or non-venomous Eurytomata.

According to Prof. Reinhardt, nearly all the genera of Boiinae have uniporous scales; in *Loxocemus* they are poreless, as in the Calamarinae. Other resemblances to these serpents have been previously pointed out, loc. sup. cit. The os postfrontale is elongate falciform, articulated at its proximal extremity with an anterior prolongation of the os parietale, and slightly with an os supraorbitale. Between the latter bone and the os frontale a second superorbital is intercalated. The presence of these bones, together with the biserial urosteges, constitute points of affinity with the Pythones. The os mastoideum and o. quadratum are short and stout. The o. nasalia are slightly contracted by the production of the o. prefrontalia, but again expand, and unite with the o. frontale by an extensive suture. These two points are Erycine. The Boiinae seem, therefore, to be divisible into four subgroups—the Pythones, the Boæ, the Loxocemi and the Eryces. The osseous structures typical of these groups are: 1st, supraorbital bones and a denticerous intermaxillary; 2d, no supraorbitals or intermaxillary teeth; prefrontals which separate the nasals from contact with the frontals, (observed in *Enygrus*, *Ungalia Homalochilus*, *Boa*, *Chilabothrus*, *Eunectes*, *Epicrates*, *Xiphosoma*); 3d, supraorbitals present, intermaxillary edentulous, nasals articulating broadly with frontals, suspensoria short, stout; 4th, no supraorbitals or teeth on the intermaxillary; nasals articulating broadly with frontals, suspensoria short, stout.

Lichanura trivirgata Cope.

The genus *Lichanura* may be diagnosed as follows:

General form abbreviated and stout; tail short, thick, obtuse at the extremity. Head slightly distinct, elongate, subcompressed; muzzle rather constricted; eye small, pupil vertical. Rostral plate elevated; nostril between two plates, the anterior in contact with that of the opposite side, upon the median line. Posterior to these the upper surface of the head is covered with smooth scales. Labial plates without pits. Scales smooth, broad, poreless. Spurs conspicuous. Gastrosteges narrow. Fronto-nasal suture extensive.

This genus of Eryces differs from *Cusoria Gray* in its elevated rostral plate and its two nasal plates. In *Cusoria* there are three of the latter, and a depressed rostral. The form, etc., of the head is somewhat similar to that of *Homalochilus* among the true Boæ, which, however, possess a nostril bordered by three shields. *Acrantophis Jan.*, the true position of which it would be interesting to know, appears to be an ally. The irregular squamation of the superior surface of the muzzle the acute tail, and partially divided urosteges of that genus, separate it.

L. trivirgata inhabits the southern region of Lower California, where Mr. J. Xantus has obtained it for the Smithsonian Institution (Nos. 2277 and 2287) and the Academy. He found it in swamps among the mountains. Its scales are in forty longitudinal rows, the inferior a little larger than the others. Ten scales in the ocular ring: superior labials fourteen or fifteen, the anterior three highest. Lorcals, three superior vertical, two inferior horizontal. Rostral plate prominent, elevated, recurved, quinquelateral, its labial border as long as its nasal. Inferior labials fifteen, the anterior five longest. A short mental fissure. Total length 25 in., tail 4 in.

General color pale yellowish, tinged above with brown. The belly and flanks are irregularly specked with liver brown. Superiorly there extend from the muzzle to the end of the tail three deep liver brown bands, the median four, and the two lateral, five scales wide, separated by intervals three and a half scales in width.

The coloration of this handsome Boa is altogether unique in the family. It calls to mind the *Phimothyra* of the same region.

Charina plumbea Cope. *Wenona plumbea et isabella* Bd. et Grd., Catal. Serp. 1853, p. 139.

The Erycine genus *Charina*, established by Gray in 1849, has since, as it appears to me, received the names of *Wenona*, (Bd., Grd.,) *Rhoptrura*, (Peters. Monatsber. Preuss. Acad. 1858, p. 504), and *Calabaria* (Gray, P. Z. S. 1858, 155.)

The two latter authors have not, however, made us acquainted with the osseous structure of the African species upon which their genera are founded. In the American species the *os frontale posterius* is wanting, which constitutes an approximation to the Tortricidæ: the same peculiarity is possessed by *Lichanura*, though its external form does not betray the affinity thus expressed. In the typical subgroup of the Erycæ this bone is present. The two species of Baird and Girard's *Wenona* are probably identical, as suspected by Dr. Cooper, in the Nat. History of Washington Territory. That the *C. plumbea* differs from *C. Bottæ* Gray, appears to us doubtful. The former occurs at Guaymas, Sonora. Mus. Comp. Zool. Cambridge.

TYPHLOPSIDÆ.

Stenostoma humile Cope. *Rena humilis* Baird et Girard Catal. Serp. Smiths. Inst., 1853, p. 143.

Specimens from Cape St. Lucas are identical with those from the parallel of Fort Yuma, east of the mountains. In both I have found the scales to be in fourteen longitudinal rows, not fifteen, as described.

Rena B. & G. has been stated by Prof. Peters (Monatsber. Berl. Ac. 1857, 402) to be identical with *Stenostoma Spir*, as is obviously the case. The second species found in the United States, *S. dulce*, inhabits Texas and Florida (*Kirtland coll.*) The scales of this also I find to be in fourteen rows.*

Of the sixteen species of serpents which Mr. Xantus has obtained near Cape St. Lucas, but eight are known to inhabit other regions. Of these, the *Lampropeltis* and *Stenostoma* have been found near the head of the Gulf of California. The *Trimorphodon* may have been found in Arizona. The *Phimothyra* inhabits Chihuahua, Sonora and Arizona; the *Thamnophis*, Durango and Coahuila; *Tropidonotus validus*, Durango and Utah; while *Caudisona atrox* and *Drymobius testaceus* extend as far east as Texas and Arkansas.

Of the eight peculiar species, seven belong to genera which are represented by allied species in the above regions, *Lichanura* only not having been found elsewhere. This is evidence of the identity of the Cape fauna with the Sonoran and New Mexican, as pointed out by Prof. S. F. Baird, Proc. A. N. S. Phila. 1859, p. 299.

One species of the sixteen (*Lampropeltis boylii*) inhabits the State of California, but the Lucasian specimens have much the character of those of another species (*L. splendida*) found in Arizona. But five of the twelve genera are represented in the first mentioned region. The Californian genus *Charina* has been found at Guaymas, on the east coast of the Gulf of California, but not in Lower California.

While two of the species inhabit Texas, seven of the genera are represented there. † Those not represented are *Hypsiglena*, *Chilomeniscus*, *Lichanura*,

* Many of the species noticed in this enumeration have been obtained through, or exist only in, the museum of the Smithsonian Institution, Washington. The author desires to express his acknowledgements for the opportunities obtained under the liberal constitution of that institution as interpreted and executed by its Secretary, Prof. Joseph Henry, LL.D.

† Prof. Baird, Pr. A. N. S. Phil. 1859, p. 300, alludes to species allied to *Arizona elegans* and *Scotophis Emoryi* from the Cape. These I have not seen.

Trimorphodon and (?) Phimothyra. Elaps, extending westward to the Gulf of California, has not yet been discovered at the Cape.

No species has yet been found which is common to Cape St. Lucas and the country of Vera Cruz and Jalapa. The genera common to both are Caudisona, Drymobius, Thamnophis, Tropidonotus, Lampropeltis and Phimothyra; all found also in Texas and the Southern United States.* They form but one-half of the whole number included in the Lucasian fauna.

Genera characteristic of Jalapa, and not known to exist in Lower California, Arizona, or Texas, are Catostoma, Ninia, Chersodromus, Pliocercus,† Stenorrhina, Himantodes, Bothrops and Bothriechis; all of which, except Chersodromus, are represented in South America and intermediate localities. The latter statement is true as regards Sibon, Coniophanes, and Spilotes, which Jalapa shares with Texas, and of Arizona and Dryophis, which are found in Sonora. Omitting Thamnophis and Lampropeltis as common to the two faunae, we find here but one nearctic type (Tropidonotus) among the many neotropical.

We know but little of the herpetology of Guatemala west of the Cordilleras. Caudisona duriss is the only serpent yet obtained there, which we suppose to be found in Vera Cruz. The ten known genera are identical, excepting Loxocemus, and ?Conophis. Other genera which have not been found north of Central America, are Colobognathus, Hydrodipsas, Hydromorphus, Thamnocentris, Dipsas, Tomodon, Xenodon, Scolecophis, Oxyrhopus; the first four are not known to extend into South America. Trimorphodon, Hysiglena and Tantilla, are the only genera known to be common to the fauna of Central America and that of Lower California, Sonora and Arizona, which may be called the Sonorian.

Comparing this last subfauna with that of Southern Texas, at least five degrees further south, we find that while neotropical genera are to nearctic in the former in an equal proportion, in the latter they are as one to four. Of five genera peculiar to the former region, four have neotropical representatives, none nearctic. No genus is peculiar to the Texan region. Rhinochilus, common and peculiar to the two regions, is nearctic in relationship.

The probabilities are then, that the artificial line separating the neotropical and nearctic groups of faunae must be placed several degrees further north on the west of the Cordilleras than on the eastern coast region. It is also probable that the tropic of cancer, the line proposed by Dr. Günther, will be found to be nearly the true position of its eastern extremity.

List of the Mollusca inhabiting the neighborhood of Philadelphia.

BY W. M. GABB.

Believing that the best way of obtaining an accurate knowledge of the geographical distribution of species, is by the publication of numerous local lists, I have prepared the following catalogue of Mollusca of our neighborhood. Most of the species have been collected by myself this season. I have received valuable information and assistance from several of my friends, all of which is acknowledged at the proper place. I have been careful to point out the principal localities, more especially to assist young collectors.

GASTEROPODA.

MELANIIDÆ.

Melania Virginica Say.—Found everywhere. The specimens from the Schuylkill appear to be somewhat larger than those from the Delaware.

* *Phimothyra grahamiae* has been obtained at Port Mojave, California, by Dr. Cooper, vid. Proc. Cal. Acad. Nat. Sci., 1861, p. 123

† Is not this *Elapochrus* Peters? A species inhabits New Grenada, and a third (*P. aequalis* Salv.) eastern Guatemala.